A Case Report of Profound Postoperative Bradycardia

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Introduction

Patients receiving subarachnoid block for a variety of surgical procedures may experience side effects which include hypotension, bradycardia, feelings of lightheadedness, and nausea. Sinus arrest is a complication that has been reported in otherwise young, healthy patients (1). The length of time after the administration of a spinal anesthetic and the time to the occurrence of cardiac complications remains a difficult aspect to describe. The following case describes the occurrence of severe bradycardia in an elderly, ASA II male, approximately two hours after SAB for transurethral prostatectomy (TURP).

Case history

A 70 year old, ASA II, 100 Kg male, scheduled for TURP, presented for surgery. The preoperative assessment was significant two for decompression laminectomies. One at $L_{4,5}$ and the other at L_5S_1. The medical history was positive for hypertension which had recently resolved with the patient requiring no medication for greater than a decade. A 12-lead electrocardiogram revealed a sinus bradycardia with a rate of 50 beats per minute.

After transport to the operating suite, standard monitors were applied and a 500cc bolus of lactated Ringers was administered intravenously. Midazolam (2mg) intravenously and fentanyl (25mcg) intravenously were administered. The patient was positioned sitting and the L2-3 interspace was identified. The SAB was performed with standard betadine prep, sterile drape, and the interspace injected with 1% lidocaine. A 24 gauge Sprotte needle via an introducer revealed free-flowing CSF on the first attempt. Spinal anesthesia was achieved with 1.4 ml of 0.75% Marcaine in 8.25% dextrose. A

bilateral T6 level was achieved while systolic, diastolic, and mean arterial pressures remained within 20% of baseline. The case proceeded uneventfully and was completed in 35 minutes. The patient was then transported to the Post Anesthesia Care Unit with standard monitors in use. Approximately two after placing the subarachnoid block, the patient yawned and immediately became profoundly bradycardic. Atropine, 0.5mg, was administered for a heart rate of 20 beats per minutes and a systolic blood pressure of 79mmHg. After a brief period, the 0.5mg of atropine was repeated for persistent bradycardia. The patient was noted to be conversant throughout the brief episode although his memory of the incident is incomplete. The heart rate returned to baseline within two minutes. The patient's subsequent recovery was without incident. A cardiology consult was performed and the patient was eventually ruled out for intraoperative myocardial infarction.

Discussion

The incidence of severe bradycardia following subarachnoid block has been reported to be 0.15% (1). In addition there is a 0.07% incidence of cardiac arrest. Interestingly, most of these events have occurred within a brief period following administration of subarachnoid block. Age appears to play no role for there have been reports of two cases of asystole in young, healthy patients receiving subarachnoid block (2). However, both of these events occurred within a brief period following the subarachnoid block placement. There have been no reports in the literature reporting on the incidence of severe bracycardia possibly attributed to subarachnoid block when the time interval of placement to event is greater than one hour.

Other etiologies excluded from the differential diagnosis included: drug induced bradycardia, hypoxemia, physiologic (congenital, hypothermia, hypothyroidism, physical conditioning), and intrinsic disease of the sinus node ("sick sinus" syndrome). The patient's advanced age, low resting heart rate, and history of previous syncope placed him at risk for increased vagal tone. The Bezold-Jarisch reflex, a profound vasovagal response, was excluded as a risk in this case since tachycardia failed to preceded the severe bradycardia (3).

Reference:

(1) Pollard, J., (2001), Cardiac Arrest During Spinal Anesthesia: Common Mechanisms and Strategies for Prevention, Anesthesia and Analgesia, 2001;92;252-6.

(2) Mackey, D., Carpenter, R., Thompson, G., Brown, D., & Bodily, M., (1989), Bradycardia and Asystole during Spinal Anesthesia: A Report of three cases without morbidity, Anesthesiology, 70:866-868, 1989.

(3) D'Alessio, J., (1995), Activation of the Bezold-Jarisch Reflex in the sitting position for shoulder arthroscopy, Anesthesia and Analgesia, 1995; 80.